Biological Evaluation

California Five-spined Ips Infestation

Ips confusus (Lec.)

Walnut Canyon National Monument and Adjacent U. S. Forest Service Land

Flagstaff, Arizona

October, 1960

By

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INTRODUCTION

The California five-spined ips infestation in pinyon at Walnut Canyon National Monument and on adjacent Forest Service land was evaluated by the writer October 3-5, 1960. At that time only a few trees within the boundaries of the monument had been killed by the insect. The infestation, however, is very active only a few miles away and potentially dangerous to the monument.

The infestation originated in an area of pinyon-juniper type, cabled during the summer of 1959, in connection with a range improvement program. The cabled area, approximately 1,100 acres, lies just outside the monument boundary to the north and east on Forest Service land. Along portions of the boundary line a narrow strip of trees were left uncabled as a buffer zone, however, cabling extended in some places to the boundary line. In the spring of 1960, Forest Service personnel burned most of the cabled debris directly adjacent to the monument boundary. Burning was not complete, beetle populations built up in the unburned trees and moved into nearby green trees.

Late in July, 1960 the insect appeared in the fire-scorched trees, and unburned debris adjacent to the monument. In September, Park Service personnel reported that the insect had infested standing green trees in the buffer strip and on the monument.

TECHNICAL DATA

Causal agent -- California five-spined ips, Ips confusus (Lec.).

Host tree -- Pinyon, Pinus edulis Engelm.

Type of damage -- Tree killing in groups of from 6-30 trees. At the time of the evaluation the infestation was in its early stages and tree loss could still be considered as light. Approximately 85 trees have been killed on a section of land in and around the monument. To the north and east of the monument, north of the cabled area, the infestation is more advanced and hundreds of pinyon are being killed. This area of insect build-up, although from two to four miles away, poses a serious threat to the trees on the monument.

Biological data -- Ips confusus was found in all stages but the egg. The adults and callow adults were beginning to move to the lower portions of the tree to hibernate. Beetle populations were generally light to moderate in size and in only two or three trees was the brood considered heavy.

Parasites and predators were present in the infested trees, but their populations were generally only light to moderate in number. There was little actual evidence of parasitism of the beetle population. Woodpeckers or flickers had been feeding on the brood in many trees; their effectiveness is difficult to judge.

DISCUSSION

Although the ips population are not high in the infested trees in and around the monument, and tree killing has occurred only in scattered groups, the infestation is potentially dangerous. It is a new infestation and apparently increasing. Natural control factors such as parasites and predators have had no noticeable influence on the beetle populations.

Beetle activity is centered two to four miles northeast of Walnut Canyon. Beetle populations are high in that area and there is a strong possibility of their spreading towards the monument.

CONCLUSIONS

The infestation will be re-evaluated in the spring of 1961; unless the insect population suffers extremely heavy mortality during the winter, severe tree mortality may be expected. To prevent tree mortality, heavy use areas may be treated with a 2 percent emulsion of DDT in April and July.